Ideas *Innovations* IDAHO

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By day, David Payne is an engineer at Hewlett-Packard Co. But his patent portfolio—just over two-dozen strong—includes several non-technology products that he pursues on weekends.

One product, an anchoring system for backyard swing sets, is sold at ToysRUs.com and Walmart. He also started, and subsequently sold, one of the first eBay consignment stores in Idaho.

Dental hygienist Becky Logue never thought of herself as an inventor. Today, however, the Eagle, Idaho resident has two patents to her name and a new technology business launched.

University of Idaho researcher Greg Bohach is studying how to prevent and cure infectious diseases. His patents in this area focus on ways to enhance the human and animal immune systems.

From university laboratories to corporate research and development centers, the focus on innovation is accelerating. Since 1998, Idaho has had more patent activity per capita than any other state in the country.

At least one recent report shows that three of the world's top 10 most prolific inventors live in Idaho.

There's a reason Idaho has adopted "Ideas. Innovations. Idaho" as its newest slogan, with even a new specialty license plate promoting this image.

"Idaho has a history of great innovators, from J.R. Simplot to the Parkinson brothers who started Micron Technology," said Karl Tueller, deputy director of Idaho Commerce & Labor and executive director of the Office of Science & Technology. "There's a pioneering spirit here that leads to people seeking their own solutions, taking risks, and being independent. That fosters innovation and ultimately translates into more businesses and a stronger economy."

The high level of innovation in the state is evident in preliminary data from the 2005 Idaho Patent Report, which will be released later this summer. This is the first time a patent report has been created for the state, and Stoel Rives LLP attorneys, who undertook the project; say it offers insight into the future.

Semiconductor manufacturing is by far the biggest patent sector for Idaho, with 907 patents issued in that category in 2005. Other primary sectors are: mechanical (159), computer hardware/electrical devices (349), imaging and optical technology (108) and software (76).

Some surprises surfaced while analyzing the data, said Stoel Rives patent attorney John Thompson, including the fact that Idaho issues far more patents than neighboring states. The volume can be largely attributed to Micron Technology and Hewlett Packard, which claim the lion's share of Idaho's patents. Thompson adds, however, that the level of innovation ripples out into other ventures.

"Spin-off companies and related industries have developed and are generating their own intellectual property," he said. "Micron and HP have been a tremendous

TIDBITS

More information on Idaho's newest license plate promoting ideas and innovations, see www.technology.idaho.gov/license.

The 2005 Idaho Patent Report will be available online later this summer at www.stoel.com/patentreports.

To learns more about the INL's promising technologies as well as others available for licensing, see www.inl.gov (click on Partnerships, then Technology Transfer; http://www.inl.gov/techtransfer/).

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boon to the maturity of these technologies in Idaho."

"It is interesting to note the amount of work done by out-of-state patent attorneys," added Thompson. "The growth of the number of patents in the last decade is surprising. Less surprising, but also interesting is the number of patents issuing in technologies other than semiconductor manufacturing."

Emile Loza, managing attorney for Technology Law Group in Boise, moved to Idaho from Washington D.C. for its quality of life – but also for the growing opportunities she saw in the state.

"Idaho's technology community is exhibiting tremendous energy right now," she said. "We see remarkable innovations coming out of Post Falls, Jerome, Boise, Eagle, Moscow, Pocatello, Idaho Falls, Twin Falls, and many points in between."

Loza said software seems somewhat more prominent, but added current technology development seems to be coming from a number of varied sectors.

Her three-year-old international intellectual property practice now employs 15 people, and it has expanded to include Internet and legislative issues as well.

But the opportunity isn't all one-sided. Loza said that overseas investors have learned there are strategic investments to be made in the Intermountain West, and she often gets queries about good investment opportunities. Overseas investments into U.S. technologies are yet another opportunity for capital for Idaho entrepreneurs, she said.

"I hear from attorneys in China, Taiwan, Korea – they are looking for creative opportunities for investment," she said. "They want to acquire or license rights and they are competing with venture capitalists here for good deals."

Mark Solon, managing partner at Highway 12 Ventures, says the start-up entrepreneurs he sees are developing work across a number of technology sectors.

"For the most part, the innovative ideas we see are largely uncorrelated," said Solon, adding that entrepreneurs are coming from all areas – from larger Idaho firms and independent individuals as well as those moving into the state from other areas.

Solon says that new programs at Boise State University will bolster Idaho's innovation community.

"The best thing we've seen in the last five years to foster innovation here is the new Ph.D. programs at BSU in electrical and computer engineering," he said. "The Micron Foundation's recent $5 million gift to these two programs is spectacular. To truly foster innovation which will result in a dynamic and healthy technology start-up environment, our state leaders needs to ensure that our engineering schools offer advanced programs leading to Ph.D. degrees in all the major scientific and engineering disciplines, including mechanical engineering, civil engineering, materials science, computer science, biology, chemistry, physics, and mathematics."

The Micron Foundation, the philanthropic arm of Micron Technology Inc. – Idaho's largest industry employer and one of the world's largest memory chip firms – has played a major role in developing engineering programs at Boise State University.

At Boise State, which has set a goal to become a "Metropolitan Research University of Distinction," patent activity is primarily in sensors, magnetic materials and electrical devices.

As recent as 2001, the university had no patents in its history. In 2002, however, BSU was awarded one patent and made three intellectual property disclosures (a predecessor filing to submitting paperwork for a patent).

Since then, patent activity – including disclosures, filing for provisional patents, filings for patents and patents awarded – has increased. In 2005, the university received one provisional patent, had two patents pending and had filed three disclosures.

That activity will only continue to grow, said BSU Provost Sona Andrews.

"Boise State University has seen steady growth in patent activity over the past five years," said Andrews. "As the university continues to attract new research dollars and to build its doctoral programs in the sciences and in engineering, we expect this growth to continue at an accelerated rate."

Boise State's Doctor of Philosophy degree programs include a Ph.D. in geosciences that will enroll its first students this fall; a Ph.D. in electrical sciences and engineering that began spring semester; and a Ph.D. in geophysics, which graduated its first student in May.

University of Idaho in Moscow has been a leader in commercializing technology

EVENTS

Dates to Watch for Idaho Entrepreneurs and Innovators

June – September – The first annual Stoel Rives Idaho Innovation Awards launched in June 2006, with a call for nominations. Awards will be presented Sept. 26. To apply or get more information, go to www.stoel.com/innovation.

June 28-29 – TechLaunch 3.0 is an annual event that helps entrepreneurs learn how to connect with and present to investors. For information, go to www.ieda.biz.

Sept. 26-27 – The 8th annual Intermountain Venture Forum takes place in Boise, featuring regional start-up firms presenting to a national audience of venture capitalists and angel investors. For information or to apply to present, go to www.ivfboise.org.

Spring '07– The third annual KickStart event, which includes workshops and keynotes on entrepreneurialism, is being planned. More will be posted at www.kickstartidaho.com.

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Inventor's Profile

A glimpse inside an inventor's process

Name: David Payne
Occupation: R&D mechanical engineer at Hewlett Packard Co.
Innovations: 24 patents for HP and more pending. 2 patents for non-HP inventions, and one pending.
Other: Started SwingSafe business, based on his invention of an anchoring system for swing sets. Started and later sold AuctionDonkey, an eBay consignment store.
Next up: "I have two new ideas I am currently prototyping and testing. One is for the Orthodontics industry and the other is for sprinkler systems. I have a really cool idea for an automatic transmission (CVT, continuously variable transmission) for mountain bikes that has been bugging me for years. I would really like to get it going. Anybody want to help?"
Process for inventing: "Like most people, ideas come to me at all times of the day, even in my sleep. Of course, some of the ideas may not be worth writing down, but for those that are, I carry an idea notebook in my laptop bag. "Sometimes I am caught without my notebook. At those times, I may just jot the idea down on some scratch paper or a business card and transfer it to my notebook later. The entries in my notebook are not highly detailed. For me, the big trick is not losing that first inspiration. I have got up in the morning knowing that I had a really cool idea in a dream but just could not remember it. Now, I keep a pen and paper on my bed stand.

"After I have had some time to let the idea digest, I will bounce it off friends who have some expertise or experience in the pertaining field."

Inventor's Profile

From great idea to a product

Name: Becky Logue
Occupation: Part-time dental hygienist, full-time president of Beckmer Products
Innovations: The Dental Rat, a foot-operated computer mouse for dental offices
Next up: Pursuing additional markets (industrial, disabled, surgical, manufacturing) for the foot-operated mouse.
Process for creating a product from a great idea: "I think we all invent things that we find a need for but usually don't step out and go through the processes. Sometimes we think someone else has thought of it, or we don't know how to make it happen. I was surprised when I went to the patent attorney to have him search and he found that there wasn't anything like (my product) out there. Since then, it's been a fun journey – sometimes bumpy – to go through the processes needed to think of a name and logo and how it should look and how it would work, to manufacturing, and now nationwide!"
On being innovative: "I've always had an entrepreneur attitude. I've always wanted to strive for more. When the need for something that could help me do my job better kept hitting me, and my dad and friends pushed me, I got off my butt and decided to move on it. You have to have a strong belief in your dream and be ready for a lot of highs and lows. It is wild to be speaking at hygiene schools, when speaking publicly was my biggest fear in life, and then be on the cover of a national dental magazine!"

among the state's research institutions, with about 30 invention disclosures submitted each year.

"There is a growing interest in entrepreneurialism at UI, and this leads researchers to approach problems in new ways," said Gene Merrell, assistant vice president for research at University of Idaho. "We are also experiencing an increase in interdisciplinary research, which attacks more complex problems and generally results in more innovative solutions."

Merrell said most current disclosures are in the areas of life sciences, material science and engineering and electrical engineering.

Dr. Chien Wai, a UI chemistry professor, is the university's most prolific inventor, with more than 40 invention disclosures, and 15 patents issued and pending in the area of supercritical fluid technology. His innovations have ranged from work related to recovering radioactive materials from spent nuclear fuel to more recent work in developing semiconductor-manufacturing techniques. In addition, he has developed a pressurized water extraction method for producing nutraceuticals and a number of nano-related applications.

The Idaho National Laboratory's 1,500 researchers also work in a variety of areas in basic and applied science, producing technologies with varied applications. Idaho is one of just eight states in the nation with a national laboratory; the Idaho facility focuses primarily on nuclear energy and homeland security issues.

INL researchers have earned selection from R&D Magazine among top 100 most promising technologies each year for the past nine years. "Commercialization of the intellectual properties owned by the Idaho National Laboratory is a top priority," said Tom Harrison, acting manager of Technology Transfer and Commercialization. "We have more than 4,000 intellectual properties available for licensing across six industry categories, including environment, nuclear research, energy security, software, biosciences and national security." **IQ**

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